



Drones In local government

Walk into any crowd of people and just say the word “DRONE”, step back and listen to the conversation. Drones have been a hot button topic for the past couple of years, and with good right. With the prevailing sense of “big brother” resonating with citizens, what can local governments do to ease tension surrounding drones and drone usage?



Essentially, a drone is a flying robot. The aircrafts may be remotely controlled or can fly autonomously through software-controlled flight plans in their embedded systems working in conjunction with onboard sensors and GPS. Local governments across Virginia, as well as the United States, are using drones for a variety of tasks.

Michael Keating, a writer for *Government Product News* outlines a few of those tasks here. “In Los Angeles, the sheriff’s department is deploying an unmanned aerial device to aid deputies responding to arson scenes, suspected bombs and hostage situations.

In Westfield, Mass., the city council has accepted a \$15,000 gift to the police department to purchase a new drone. The unit will provide an overhead look at traffic patterns when policing the Great New England Air Show and other special events. The device will also be used in search-and-rescue cases and to get a bird’s-eye view at crash sites.”

Drones are cool to “geek out” over but there is a lot of work that should be done prior to the development of a UAV program and before the first drone is ever purchased. First you have to consider how the administrators and the

public feel about drones. Having a developed understanding of how drones will be used to, in this case, support county processes and procedures, as well as developing the necessary educational components to support those initiatives will go a long way in garnering support for a UAV program. Identifying which departments will use a drone, who will fly it, and what the budget is for the program will help address any initial questions regarding a UAV program.

Several counties around Virginia have been successful in implementing UAV programs within their localities. Richland County, VA has developed and implemented a UAV program within their Geographic Information System (GIS) department. The GIS department has 4 Federal Aviation Administration (FAA) certified pilots that operate the 2 drone unit. Dr. Patrick Bresnahan, the lead geographic information office overseeing the UAV program says, “These small autonomous platforms are just the next step in evolving technology for mapping sciences. With this evolution, the resolution of mapped objects has improved dramatically. Although our focus remains on mapping, a growing number of applications and requests can be satisfied quickly just because we have the gear and staff already in the field.”



Richland County is using the UAV program to support more than just mapping in the county. These units are being used to:

- Promote economic development by providing detailed aerial footage of available business real estate
- Provide mapping data for various County departments, including the Assessor, Emergency Services and Planning
- Assess infrastructure damage from the October 2015 flood
- Gather information to help document construction of transportation program projects
- Collect elevation information to gauge capacity at the County landfill

UAVs provide a cost effective solution to acquiring accurate, high resolution data on-demand. The two commercial-grade drones used in Richmond County have three-foot wingspans and weigh less than five pounds. At less than \$2,500 each, their price tag is remarkably less than paying for aerial data recorded from staffed helicopters or airplanes. And, interchangeable cameras enable the units to record mission-specific information. The specific units used in Richmond County are equipped with a HD high resolution camera, and an interchangeable thermal imaging camera.



Stafford County, VA sheriff's department was recently successful in the apprehension of a man wanted in connection to an incident involving gunshots fired into a car thanks to a thermal imaging camera deployed via drone. The suspect in question, wearing camouflage pants and a hat, was spotted using drone and thermal imaging technology walking near powerlines.

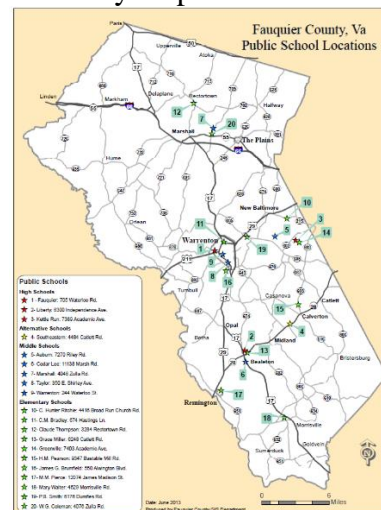
Fauquier Schools App



In January of 2016 the Fauquier County GIS department worked with Fauquier County schools to develop and deploy a Fauquier schools web-application that will identify school districts based on school type.

The project began when the GIS received an email asking if a map of schools, which was generated in previous years, could be used as an interactive map. Specifying a “drilled down” functionally, we understood the schools wanting the users to be able click on the map and get more information, as it related to the school district. As we all know PDF's are great for sharing static maps and forms but don't offer the same functionality of an interactive web site.

The GIS department provides geospatial support to Fauquier County schools in a variety of roles. This role is specific to provided current school district boundary maps as a visual resource for the schools,



students, and parents. Historically, these maps are created as static PDF maps.

These maps work well for visualizing a boundary or providing an educational resource, but are very one-dimensional. Technology is moving the world into an interactive interface where all print media is readily accessible via smartphones and/or tablets. To accommodate this trend, the GIS department developed a solution leveraging ArcGIS Online's web app builder in the creation of an interactive site to display school districts and locations. This new site gives the user the ability to search an address and visually see what school district they are in, based on their street address. Information dialogue boxes or pop-ups provide the user a web URL to each school's website with in the county, providing detailed information and contact information for that school. The site was reviewed all decision makers and shared via the Fauquier County GIS office's interactive map gallery for citizen access.